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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,310	10/22/2001	Laszlo Man	3191/1G988-US1	9871

7590 12/13/2002

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[REDACTED] EXAMINER

VANAMAN, FRANK BENNETT

[REDACTED] ART UNIT

[REDACTED] PAPER NUMBER

3618

DATE MAILED: 12/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/021,310

Applicant(s)

Mán

Examiner

Vanaman

Art Unit

3618



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on Sep 20, 2002

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-67 is/are pending in the application.

4a) Of the above, claim(s) 5-8, 18, 23, 24, 27, 29, 32, and 37-67 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-4, 9-17, 19-22, 25, 26, 28, 30, 31, and 33-36 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

/

1) Notice of References Cited (PTO-892)

4) Interview Summary (PTO-413) Paper No(s). _____

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

5) Notice of Informal Patent Application (PTO-152)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

6) Other: _____

Art Unit: 3618

Election of Species

1. Applicant's election of Species I and XIV in Paper No. 7 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Applicant has identified claims 1-7, 10-27, 30, 31, 33-36, 38 and 53 as being readable on the elected species.

Of these identified claims, certain claims are directed to subject matter not associated with the elected species: claims 5-7 refer to a pair of sheaves and an endless loop connection; claim 18 refers to a planetary gear mechanism; claim 23 refers to a centrifugal clutch; claim 24 refers to an electromagnetic clutch; claim 27 refers to a belt drive and different diameter pulleys; claims 38 and 53 refer to a pulley and belt drive *between the engine and the transfer device* and a belt tensioning mechanism. These elements are not shown in the figures representing the elected species (1a, 1b, 9) and are thus further withdrawn from consideration.

Certain claims not identified as being directed to the elected species include elements which appear to be properly associated with the species: claims 9 and 28 refer to the use of gear pairs in the transfer device, as illustrated in figure 9.

Claims 1-4, 9-17, 19-22, 25, 26, 28, 30, 31, and 33-36, then, are directed to the elected species, and an office action on these claims follows. Claims 5-8, 18, 23, 24, 27, 29, 32, 37-67 are withdrawn from consideration.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Art Unit: 3618

3. The disclosure is objected to because of the following informalities: on pages 31-32, figures 10-17, 22 and 23 are not separately referred to; on page 58, line 16, "rotaqry" should be -- rotary--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. Claims 1-4, 9-17, 19-22, 25, 26, 28, 30, 31 and 33-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, lines 7-8 the recitation of the device operable "at least as a motor and as a generator" is confusing in that "at least" implies an open ended recitation-- it is not clear what other functions such a device would be capable of achieving; in claim 1, lines 11-12, the recitation of the rpm ratios setting themselves is confusing in that it appears as though the interactive rotary connection performs this function; in claims 14, 30 and 33, the recitation of "a first mode" and "a second mode" is confusing in view of claim 1, lines 14-15, which refer to "driving" and "start-up" modes-- it is not clear whether these recited first and second modes are different modes or different terms referring to the same modes; for consistency of recitation, an element or condition should be referred to by the same term throughout the claims; in claims 34 and 35, the use of "upstream" and "downstream" as relative terms is confusing in that the particular way in which one element is "upstream" for example, of another is not set forth.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 3618

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 1, 2, 4, 9, 10, 11, 14, 17, 20 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Tabata et al. (US 5,935,040; filed 7/1997). Tabata et al. teach a vehicle having a power train including a combustion engine (12) with a drive shaft, a transmission (18) with an input shaft, an energy converter (14) which can operate at least as a motor and generator; with an energy convertor shaft (14r) turning at a different rate; which has a rotary transfer device "arranged" on the drive shaft, in the form of an interactive connection (16) including at least one gear pair (16c, 16s, 16r), the interactive connection being connectable to the drive shaft, which can select a plurality of rpm ratios (through the operation of the two clutches CE1 and CE2) so as to function in at least two operating modes including a start-up mode (Mode 9-- for starting the combustion engine, wherein torque flows from the convertor to the engine) and a driving mode (Mode 1-- for propelling the vehicle, wherein torque is delivered to the vehicle drive train) and a generation mode (Mode 3-- for charging while driving, wherein torque flows to the convertor, and wherein an rpm ratio of between 1:2 and 2:1 is set); the driving shaft extending from a rear portion of the engine, facing the transmission, where the interactive connection is located; there being provided a torque coupling device (C1, C2) for connecting and disconnecting the transmission from the drive shaft; the energy convertor and engine shafts being parallel;

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3618

8. Claims 1-4 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. (US 4,869,332) in view of Maucher et al. (US 4,458,156). Fujita et al. teach a vehicle power train including a combustion engine (1), with a drive shaft (8, 113), at least one selectively operable torque coupler (133, 137, 138), connecting to the transmission (117) which includes an input shaft (118), an electro-mechanical energy convertor (2) with a shaft (3) parallel to the drive shaft, and turning at a higher rpm rate than the drive shaft; an interactive rotary connection (4-10) with two rpm ratios (using first gear pair 5 & 6 and second gear pair 7 & 9); wherein the ratios are automatically set through the use of a first and second overrunning clutch (4, 10), the system operable in a start up mode (2 serving as a starter motor, running at a higher rpm rate, using gear pair 5, 6) and a driving mode (2 serving as a driving motor, using gear pair 7, 9). The reference of Fujita et al. fails to teach the energy convertor as being functional as both motor and generator, and also fails to teach the convertor and interactive coupler as being located specifically behind or in front of the engine, with respect to the transmission. Maucher et al. teach a vehicle structure including an engine and an energy convertor (12, 13) which may function as both a motor and generator; wherein the energy convertor may be located (a) rearwardly of the engine (11) and forwardly of a transmission (figure 1), or (b) forwardly of the engine and transmission (figure 4). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the energy convertor taught by Fujita et al. as a motor/generator for the purpose of allowing a reclaiming of lost energy, such as during braking, for the purpose of charging the vehicle battery while traveling; further it would have been obvious to one of ordinary skill in the art at the time of the invention to locate the energy convertor either forwardly of or rearwardly of the engine, as suggested by the alternative embodiments of Maucher et al. for the purpose of locating the convertor in a convenient position for service and maintenance, or to more conveniently lay out an engine space in the vehicle.

Art Unit: 3618

9. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tabata et al. The reference of Tabata et al. is discussed above and fails to specifically teach the rpm ratio in the starting mode as being smaller than the ratio in the charging mode, and wherein the ratio in the charging mode is in the range of 2:1 and 1:2. It would have been obvious to one of ordinary skill in the art at the time of the invention to adjust the relative ratios for the starting and charging modes, for example such that the rpm ratio in the starting mode is smaller than the ratio in the charging mode, which is in the range of 2:1 and 1:2, for the purpose of adjusting the relative speeds of the rotating components, in order to insure that charging is accomplished in a most efficient speed range for the convertor, and to insure that the engine is rotated at an appropriate speed for starting, when the convertor is running in a speed where it can develop sufficient torque to start the engine.

10. Claims 19, 21, 22, 25, 26, 28, 30, 31, 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tabata et al. in view of Fujita et al. (US 4,869,332). The reference of Tabata et al. is discussed above and fails to teach the connection to the energy convertor as being a pair of fixed-ratio gear pairs (transfer elements, each forming a torque path), including a pair of overrunning clutches (one per gear pair), wherein each of the respective gear sets is employed for one of a pair of modes. Fujita et al. teach an interactive connection between an engine drive shaft and an electrical energy convertor (2) mounted on a shaft (3), including first and second pairs of fixed-ratio gear sets which serve as transfer elements (5 & 6; 7& 9) wherein each gear- or transfer element- set forms a torque path for a respective one of two modes, the flow through the path being governed by a pair of overrunning clutches (4, 10-- one per gear set), which are located upstream or downstream of a source of torque, dependent upon the direction of flow of the torque. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a dual gear set transfer device such as taught by Fujita et al. in place of the transfer device (16) taught by Tabata et al. in order to reduce the complexity of the connection between

Art Unit: 3618

the convertor and drive shaft, and to allow fixed transfer rates and rpm ratios between the respective operating modes of the vehicle of Tabata et al.

Conclusion

11. Applicant is reminded that claims 5-8, 18, 23, 24, 27, 29, 32, 37-67 are withdrawn from consideration.
12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sinclair (US 2,559,740), Kawakatsu (US 4,335,429), Bader (US 5,337,848), Troccaz (US 5,529,159), Omote et al. (US 5,735,770), Minowa et al. (US 6,142,907, filed 4/99), Lin et al. (US 6,155,366, filed 10/98) teach vehicle mechanisms of pertinence.
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is (703) 308-0424. Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 308-1113.

Any response to this action should be mailed to:

Assistant Commissioner for Patents
Washington, DC 20231

or faxed to :

(703) 305-3597 or 305-7687 (for formal communications intended for entry;
informal or draft communications may be faxed to the same number but should be
clearly labeled "UNOFFICIAL" or "DRAFT")

The Office has also established electronic fax servers for Technology Center 3600 as follows:

703-872-9326 (Official communications)
703-872-9327 (Official After Final communications)
703-872-9325 (Customer Service)

F. VANAMAN
Primary Examiner
Art Unit 3618

F. Vanaman
December 10, 2002

